

SOME NEW SPECIES OF TACHINIDAE FROM INDIA.

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A collection of Indian Tachinid flies was received some time ago through the kindness of Dr. A. D. Imms. An examination has shown that most of the specimens are new, and these are described forthwith. In the use of genera a conservative course has been adopted, and the new species have been placed for the time being at least in genera already in use.

The type specimens have been deposited for the present in the National Collection of Insects maintained by the Entomological Branch of the Department of Agriculture at Ottawa.

Gymnochaeta immsi, sp. n. = *Jantonia immsi* Felder 1875

Bright bluish green species with smoky wings. No appendage at bend of M. 1+2 (fourth vein). Palpi black, except the tips which are reddish. Length 12-13 mm.

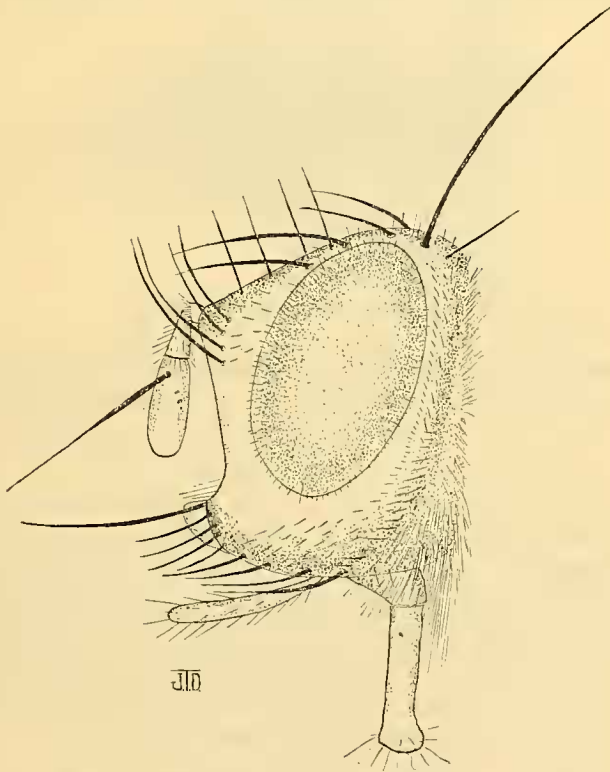


Fig. 1. Head of *Gymnochaeta immsi*, sp. n., ♀.

Head (fig. 1) at vibrissae about as long as at base of antennae; vibrissae far above the oral margin. Palpi black, with the tips slightly tinged with reddish. Eyes hairy. Cheeks (genae) white pollinose and covered on their lower three-fourths

with black hairs. Sides of face white pollinose, bare, nearly half as wide as the facial depression. Facial ridges bristly on lower fifth. Facial depression white pollinose without any carina. All segments of antenna black; the third segment in both sexes about one and one-half times length of second. Arista thickened on basal two-fifths, the second segment as long as broad. The front as wide in female, and three-fourths as wide in male, as either eye; the sides of front white pollinose above the antennae, blending to greenish on either side of the ocellar triangle; orbital bristles present in female and absent in male; the frontal vitta dark brown, opaque, and twice as wide as either side of front at narrowest place. Ocellar bristles present in both sexes and directed forward.

Thorax bright bluish green and very thinly white pollinose. Two sternopleural bristles and four post-suturals. Scutellum bluish green, with three pairs of strong marginal macrochaetae and a weaker terminal pair. Legs black; in female, tarsi slightly flattened out; tarsal claws of male longer than in female; middle tibiae with several bristles on the front side near middle. The wings (fig. 2) brownish, especially in the vicinity of the veins; venation as in figure. R. 4+5 (third vein) with about five little bristles at base. M. 1+2 (fourth vein) destitute of an appendage. Tegulae white.



Fig. 2. Wing of *Gymnochaeta immsi*, sp. n.

Abdomen bluish green and shining; the segments very thinly coated with whitish pollen. The second and third segments with strong discal as well as marginal bristles. The venter with a median longitudinal area bearing short, almost spinose bristles.

Described from one female (the type) and four male paratypes collected by Dr. A. D. Imms, near Bhowali, Kumaon, India, in July 1909, at an elevation of 5,700 feet.

This fine fly is about twice as large as *G. viridis*, Meig., and easily separated from it by the absence of an appendage at the bend of M. 1+2; by its much more clouded wings; and by its bluish green rather than green colour. It is apparently more closely related to Wiedemann's species *rheinwardtii* from Brazil than to any of its Palearctic and Nearctic congeners. In the case of *rheinwardtii*, however, the palpi are reddish yellow and the wings as clear as water.

Servillia transversa, sp. n. = *Servillia transversa*

Abdomen black, with the sides yellowish red; the bases of segments two, three and four with a wide pale-coloured band contrasting strongly with the remainder of the abdomen. Wings hyaline. Male with very weak or no ocellar bristles;

female with ocellar bristles well developed. Head thorax and abdomen with abundant straw-coloured pile in amongst the bristles and macrochaetae. Length, 11-13 mm.

Head (fig. 3) as long as vibrissae as at base of antennae; vibrissae far above the oral margin. Palpi well developed, yellow. Eyes bare. Cheeks (genae) white pollinose and entirely covered with long straw-coloured pile. Sides of face white pollinose, with abundant straw-coloured pile on outer three-fourths; at narrowest point nearly half as wide as the facial depression at its greatest width. Facial ridges with bristles confined to lower sixth. Facial depression white pollinose, without any carina. All three segments of the antenna black, but varying occasionally to slightly reddish; in both sexes the second segment longer than the third. The arista thickened on basal three-fourths; the second segment one-third to one-fourth

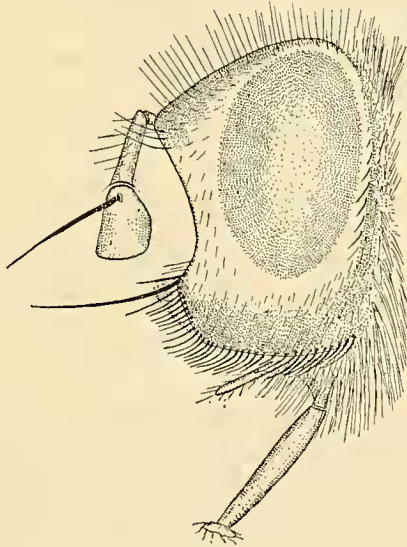


Fig. 3. Head of *Serrillia transversa*, sp. n., ♂.

as long as the third. Front at narrowest point in female one and one-fourth, in male about three-fourths, the width of either eye; sides of front whitish pollinose at base of antenna, blending to almost black at the vertex. The frontal vitta opaque, about the colour of the eyes, and at narrowest point about as wide as either side of the front. Female with, male without, orbital bristles. Ocellar bristles present in female, very weak or absent in male.

Thorax black, covered with yellowish pollen not quite heavy enough to make it opaque. Long straw-coloured pile plentiful among the black bristles and macrochaetae. Two sternopleural bristles; the post-suturals varying from three to four. Legs reddish, with tarsal claws conspicuously longer in the male than in the female. Wings (fig. 4) hyaline; a conspicuous fold at the bend of M. 1+2 (fourth vein) looking at first sight like an appendage. A group of about six little bristles at base of R. 4+5 (third vein).

First segment of abdomen black, with the sides reddish yellow. The succeeding three segments with a broad straw-coloured transverse band at base, followed by a shining black area reaching to the hind margin; and with the sides slightly to entirely reddish yellow. No discal macrochaetae on first three segments.

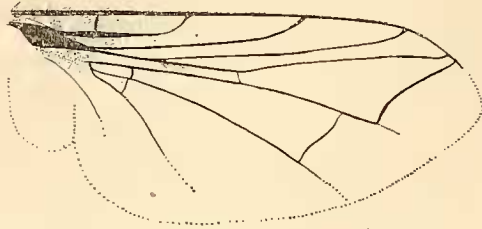


Fig. 4. Wing of *Servillia transversa*, sp. n.

Described from four males and three females collected in India by Dr. A. D. Imms at the following places and dates.

Dehra Dun: 1♂, 19.iii.13; 1♂, 1.iv.13; 1♂, 9.iv.13; 1♂, 18.iv.13—all taken on grass.

Binsar, Kumaon: 1♀, 23.v.12, 7,900 ft.; 1♀, 24.v.12, 7,700 ft.

Kalligan Range, Jaunsar: 1♀, 3.x.12.

This species is closely related to *S. lurida*, Fab., of Europe. It can be easily separated from this species however by the conspicuous pale abdominal bands, by the appendage-like fold at the bend of M. 1+2, and by its slightly greater width of front.

***Servillia ursinoidea*, sp. n.**

An unusually large fly without any striking colour markings. Head thorax and abdomen with abundant long straw-coloured pile, as well as the usual bristles and macrochaetae. Sides of abdominal segments reddish. Wings hyaline. Third segment of antenna in male as broad as long. Width of front in male at narrowest point half to two-thirds the width of either eye. Length, 14 to 17 mm.

Head (fig. 5) at vibrissae as long as at base of antennae; vibrissae far above the oral margin. Palpi well developed, yellow. Eyes bare. Cheeks (genae) pale golden pollinose, covered almost to the eyes with long straw-coloured pile; around the oral margin a single row of black bristles; the distance from the oral margin to the lower end of eye is almost as great as the eye height. Sides of face pale golden pollinose, thickly covered with long pale golden pile; about one-third as wide as widest part of facial depression. Facial ridges with bristles confined to lowest fifth. Facial depression whitish pollinose, with no carina. All three segments of the antenna black, the second varying however to reddish; the second segment in the male a little longer than the third; the third segment in the male unusually broad, in fact as broad as long. The arista thickened on basal two-thirds, the second segment about a fourth as long as the third. Front in male at narrowest point about three-fourths the width of either eye; black, but in some specimens the colour largely masked by golden pollinosity. The frontal vitta opaque and about the colour of the

eyes; at narrowest point about as wide as either of the sides of front. No orbital bristles in male. Ocellar bristles in male reduced to mere hairs and sometimes absent.

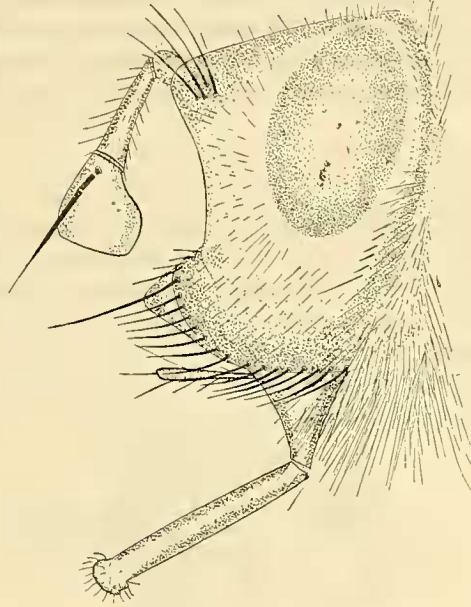


Fig. 5. Head of *Servillia ursinoidea*, sp. n., ♂.

Thorax black, but rendered almost opaque by golden pollinosity. Long golden pile abundant. Scutellum reddish. Usually three sternopleural bristles, but in the six specimens at hand they vary from two to four. Four post-suturals. Femora black, except the extreme distal ends, which are reddish. Tibiae and tarsi reddish. Tarsal claws and pulvilli noticeably long in the males. Wings (fig. 6) hyaline; about eight little bristles at base of R. 4+5. Tegulae white.

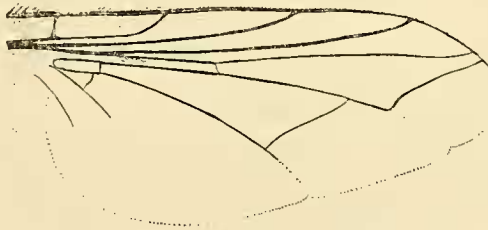


Fig. 6. Wing of *Servillia ursinoidea*, sp. n.

Abdomen black, with the sides of all segments reddish. At the base of segments 2, 3, and 4 a wide but very faint transverse pale-coloured band. Rich golden pile abundant on every segment. No discal bristles.

Described from six males collected in India by Dr. A. D. Imms as follows:—

Binsar, Kumaon: 1 ♂, 25.v.12, in jungle at 7,700 ft.

Airadeo, Kumaon: 4 ♂♂, 31.v.12, 6,880 ft.; 1 ♂, 3.vi.12, 6,880 ft.

This very large fly looks much like its Palearctic congener, *S. ursina*, Meig., and is evidently closely related to it. The width of the front is however nearly twice as great in the male of *ursinoidea* as in that of *ursina*. In the Indian fly moreover the third segment of the antenna in the male is much broader than in the male of *ursina*.

***Gonia himalensis*, sp. n.**

The entire fly covered with pale golden pollinosity. Abdomen black, with yellowish red on sides of each segment and rendered sub-opaque on account of the pale golden pollen. Wings hyaline. Frontal vitta opaque, yellow. Third antennal segment in female three times, in male six times, as long as second. Second segment of arista only half as long as third.

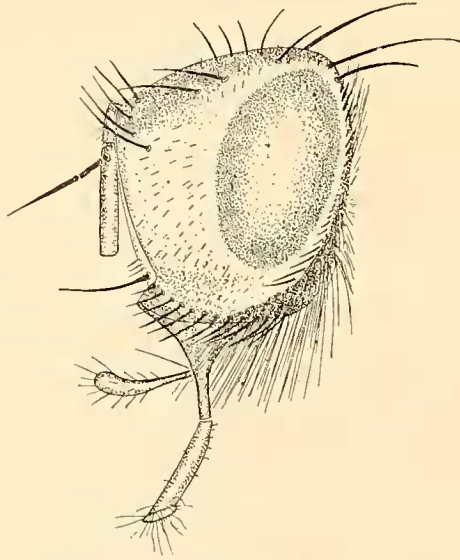


Fig. 7. Head of *Gonia himalensis*, sp. n., ♀.

Head (fig. 7) at vibrissae a little shorter than at base of antennae. Vibrissae plainly above the oral margin. Palpi well developed, pale yellow. Eyes bare. Cheeks (genae) pale golden pollinose and covered on their basal three-fourths with golden hairs; a row of black bristles along the oral margin and ending at the vibrissae; distance from the oral margin to base of eye about one-third the eye height. Sides of face at narrowest part about as wide as distance between the two vibrissae; pale golden pollinose and covered with black hairs that at the lower end shade into the golden hairs of the genae. Facial ridges bare, except on lowest sixth. Facial depression pale golden pollinose, with a well-marked vertical carina. First two segments of antenna and sometimes base of third yellow; third segment usually entirely

black. Third segment in female three times, in male six times, as long as second. Arista thickened on basal three-fourths, the second segment one-third to one-half as long as the last. Front at narrowest point about one and one-fourth times in male, and one and one-half times in female, as wide as either eye. Sides of front at lower end opaque pale golden pollinose shading to shining yellow at the vertex. The frontal vitta opaque, cinnamon colour; at ocellar triangle only one-third as wide as either side of front. Orbital bristles in both sexes. Ocellar bristles in both sexes and directed backward.

Thorax opaque, golden pollinose on a black base; the scutellum sub-shining and yellowish; long golden pile abundant on both thorax and scutellum. Four sternopleural bristles and four post-suturals. Legs black, varying occasionally to slightly reddish in all segments; tarsal claws and pulvilli only slightly larger in male than in female. Wings (fig. 8) hyaline; with two to six little bristles at base of R. 4+5 (third vein).

Tegulae white. Abdomen subopaque pale golden pollinose on a black ground; the sides of all segments reddish yellow largely obscured in fresh specimens by the golden pollen. Second segment with a pair of median marginal macrochaetae, but no discals on segments two or three.

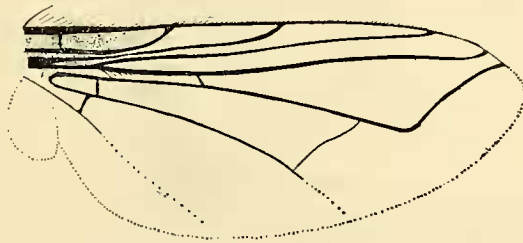


Fig. 8. Wing of *Gonia himalensis*, sp. n.

Described from seven males and nineteen females collected (except where otherwise specified) by Dr. A. D. Imms in the United Provinces, India. The field data are as follows:—

Binsar, Kumaon: 1 ♂, 2 ♀♀, 25.v.12, in jungle, 7,700 ft.

Bhowali, Kumaon: 1 ♀, 22.vi.12.

Dehra Dun: 1 ♀, 22.iii.12, on grass; 1 ♀, 2.iv.10 (*Jasman*); 4 ♀♀, 2.iv.13, on grass; 1 ♀, 2.iv.13 (*N. C. Chatterjee*); 1 ♀, 7.iv.13, on grass; 3 ♀♀, 9.iv.13; 1 ♀, 10.iv.13, on grass; 1 ♀, 17.iv.13, on grass; 1 ♀, 22.iv.12; 1 ♀, 23.iv.12; 1 ♂, 6.v.13; 2 ♂♂, 17.v.13; 2 ♂♂, 22.v.12; 1 ♀, 30.v.13; 1 ♂, 6.vi.12.

In size and general appearance this fly resembles both Nearctic and Palearctic specimens of *G. capitata*, DeGeer. The shortness of the second aristal segment will however serve to separate it from this species, as also from *G. divisa*, Meig., *G. fasciata*, Meig., *G. ornata*, Meig., and even *G. flaviceps*, Zett. In fact in this character alone the Indian species exhibits the condition found in *Spallanzania*; in habitus, however, the fly is clearly a *Gonia*. Macquart's species *rustibialis* from Pondicherry, and Walker's *oestroides* from Hindustan, I have not seen, and both are unrecognisable from the descriptions.

Paraphania fuscipennis, sp. n.

Frontal depression and sides of face bright golden pollinose. Third segment of antenna in male at least six times as long as second. Palpi dark brown. Genae bare, golden pollinose. Wings dark brown, cell R. 5 open at margin of wing. Discal bristles present. Length, 12 mm.

Head (fig. 9) at vibrissae very much shorter than at base of antennae. Vibrissae on a level with the oral margin. Palpi dark brown, almost black. Eyes bare. Cheeks (genae) bare and golden pollinose; at the oral margin a single row of weak black bristles ending with the vibrissae; distance from oral margin to eye about one-third of eye height. Sides of face bare, bright golden pollinose; width of narrowest part equal to about three-fourths the distance between the two vibrissae. Facial

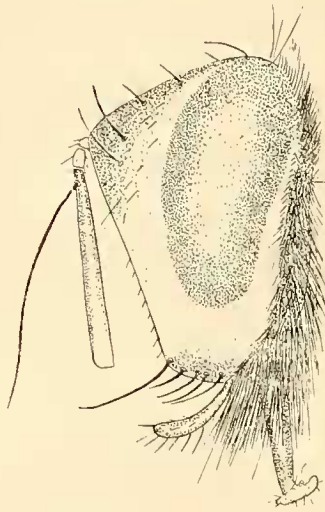


Fig. 9. Head of *Paraphania fuscipennis*, sp. n., ♂.

ridges with weak hairs on basal half. Facial depression bright golden pollinose, with no median vertical carina. Antenna in male almost reaching the oral margin, dark brown; second segment only slightly longer than first, third segment from six to eight times as long as second and flattened laterally, especially at distal end, where it tapers almost like the blade of an axe. Arista filiform, with no marked thickening even at base; first and second segments each about one and one-half times as long as broad; third segment about as long as last antennal segment; it is thickly clothed with very short hairs that are hardly as long as the arista is thick. Front at vertex about three-fourths as wide as either eye; black, except at the lower ends, where the colour blends to gold; frontal vitta opaque, black, twice as wide at narrowest point as either of the sides of front. No orbital bristles in male and all the frontal bristles notably weak. Ocellar bristles present and directed forward.

Thorax, including scutellum, with black ground mostly masked by gray pruinosity; four black longitudinal vittae, the outer pair being twice as wide as the inner. Three sternopleural bristles and three post-suturals; scutellum with three pairs of marginal bristles and no apical pair. Legs black, the tarsal claws and pulvilli in male greatly

enlarged; no bristles on flexor surface of any of the tibiae. Wings (fig. 10) dark brown; cell R. 5 opening slightly before the extreme tip of wing; a very few bristles at base of R. 4+5 (third vein). Tegulae white.

Abdomen rather long and cylindrical; black and rather weakly grey pollinose. Disca bristles as well as marginal ones on each segment after the first.

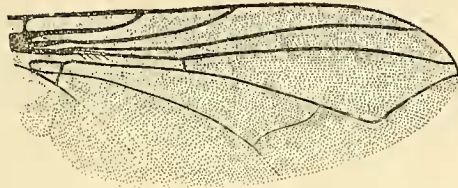


Fig. 10. Wing of *Paraphania fuscipennis*, sp. n.

Described from a single male collected by Dr. A. D. Imms, on 13th June 1912, at Chabuttia, Kumaon, India.

Of the affinities of this fly I am not at all sure, but in the absence of comparative material it seems more desirable to place it provisionally in Brauer and Bergenstamm's genus *Paraphania* than to propose a new genus for its reception. *Zambesa ocypteroides*, Walker, listed by V. d. Wulp from Singapore I have not seen, and the description is too meagre to have much value. *Duraucelia (Curtocera) bicincta*, R. D., listed by V. d. Wulp from Bengal I have not seen either.

***Chaetoplagia asiatica*, sp. n.**

Upper part of head and thorax golden pollinose. Palpi yellow; cheeks (genae) as well as sides of face bearing strong macrochaetae. R. 1 (first vein) bristly on its entire length; R. 4+5 (third vein) bristly on almost its entire length. Three



Fig. 11. Head of *Chaetoplagia asiatica*, sp. n.

sternopleural bristles and three post-suturals. Abdomen grey pollinose on a black ground; discal as well as median marginal bristles on segments 2, 3 and 4. Length, 8 mm.

Head (fig. 11) at vibrissae almost as wide as at base of antennae. Vibrissae on a level with oral margin; palpi well developed, yellow. Eyes bare; cheeks (genae) white pollinose, two large black macrochaetae in the middle, a few black hairs along oral margin in a row terminating with the vibrissae. Distance from oral margin to base of eye almost half as great as eye height. Sides of face whitish pollinose below, becoming golden pollinose above, bearing a row of four stout macrochaetae; width at narrowest point equal to almost half the distance between the vibrissae. Facial ridges bare, with no bristles whatever above the vibrissae. Facial depression white pollinose, with no median carina. Antennae fully as long as face; first two segments reddish, third segment black, varying to somewhat reddish at base; length of third segment about twice that of second. Arista black, thickened on basal three-fourths; first two segments of equal length and together as long as third segment. Front at narrowest part one and one-half times as wide as either eye; sides of front bright golden pollinose, blending at lower end to white, frontal vitta about colour of eyes and opaque, at narrowest point narrower than either side of front. Orbital bristles present; ocellar bristles present, directed forward.

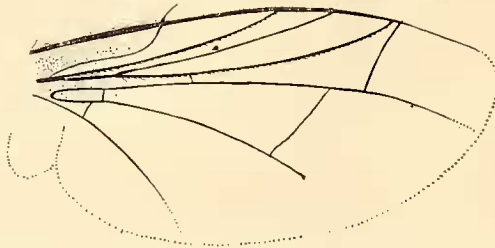


Fig. 12. Wing of *Chaetoplagia asiatica*, sp. n.

Thorax golden pollinose on black base, sub-shining. Three sternopleural bristles and three post-suturals. Scutellum with two pairs of marginal macrochaetae and a weak cruciate apical pair. Legs black, unusually bristly. Wings (fig. 12) hyaline, cell R. 5 terminating far before tip of wing. R. 1 (first vein) bristly for entire length; R. 2+3 destitute of bristles; R. 4+5 bearing bristles for almost entire length; bend of M. 1+2 (fourth vein) bearing a long appendage. Tegulae white.

Abdomen black, blue-grey pollinose on basal three-fourths of segments 2, 3 and 4; same segments bearing a pair of discal, as well as a pair of median, marginal macrochaetae.

Described from two specimens, apparently females, collected in Kumaon by Dr. A. D. Imms, who gives the following field data.

Khati, Kumaon: 30.v.09, 7,650 ft.

Bhowali, Kumaon: 20.vi.12.

This beautiful little fly is clearly congeneric with Coquillett's Nearctic *C. atripennis*, rather than with any Palearctic species known up to the present time. It seems to have the distinction of being the first species of the *Plagia* group to be described from any part of Asia.

***Frontina kashmiri*, sp. n.**

Thorax and abdomen grey pollinose on a black ground. Wings hyaline. Palpi yellow. Facial ridges bristly on lower two-thirds. Third segment of antenna in male two and a half times the length of second. Eyes bare. Front of male at ocellar triangle about three-fourths the width of either eye. Three esternopleural bristles and four post-suturals. Scutellum black. Second abdominal segment with a pair of median marginal macrochaetae. Hind tibiae with comb-like arrangement of bristles.

Head (fig. 13) at vibrissae much narrower than at base of antennae. Palpi well developed, yellow. Vibrissae inserted well above the oral margin. Eyes bare. Cheeks (genae) white pollinose, covered with short black hairs almost to the base

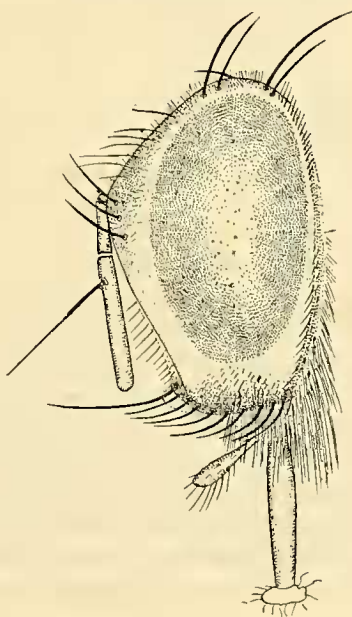


Fig. 13. Head of *Frontina kashmiri*, sp. n., ♂.

of eyes; a row of stouter bristles at oral margin, forming an obtuse angle with the bristles of the facial ridges. Distances from oral margin to base of eye equal to about one-third of eye height. Sides of face covered with silvery pollen, bare except for a few scattered black hairs; narrowest width equal to half the distance between the vibrissae. Facial ridges bristly on lower two-thirds. Facial depression silvery pollinose, without any carina. Antenna in male reaching lower three-fourths of face, the first two segments reddish, the last black; third segment in male two and one-half times the length of second. Arista thickened on basal two-fifths, the penultimate segment no longer than broad. Front in male at narrowest point about three-fourths the width of either eye, silvery pollinose below, grading to black at vertex; frontal vitta dull, dark brown, at narrowest point only a third as wide as either side of front. No orbital bristles in male; the frontal bristles

extending to base of third antennal segment. Ocellar bristles present in male, directed forward.

Thorax sub-shining, black, covered with grey pollen; scutellum grey pollinose on a black ground, tinged slightly reddish at apex. Three sternopleural bristles and four post-suturals; scutellum with four marginal pairs of macrochaetae and a weak terminal non-cruciate pair. Legs black, the hind tibiae with a conspicuous comb-like row of bristles on outer side. Wings (fig. 14) hyaline; R. 4+5 (third vein) with a group of about three small bristles at base. Tegulae white.

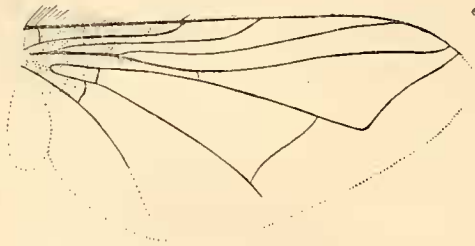


Fig. 14. Wing of *Frontina kashmiri*, sp. n.

Abdomen sub-shining; pale golden pollinose on a black ground. No discal bristles; the second segment with a median marginal pair.

Described from a single male specimen taken by Dr. A. D. Imms at Dehra Dun, Kumaon. The fly was collected on grass on 30th April 1913.

As to affinities, I have little hesitation in placing the fly in the genus *Frontina*. The few weak hairs on the sides of face would prevent the fly from running here in any of the keys, but it has an evident *Frontina* habitus. I have unfortunately only one specimen and do not know to what extent these hairs vary in the species. The form can be separated from the Palearctic *F. tibialis* by the length of the third antennal segment, which is two and a half to three times the length of the second, instead of six times as long. It differs from *Frontina (Blepharella) lateralis*, Macq., which is recorded from Pondicherry, by its black scutellum and by its lack of yellow abdominal markings.

Lophosia excisa, sp. n.

An elongate black fly, with grey pollen on thorax and abdomen. Front of head strongly excised between the eyes. Palpi black; cheeks and sides of face bare. Eyes bare. Two sternopleural bristles and three post-suturals. Legs yellow, except tarsi, which are black. Wings slightly clouded with brown; a group of about three small bristles at base of R. 4+5 (third vein). Abdomen with five visible segments, the first one short; black and shining, except for the grey pollinose bands at bases of segments 3, 4, and 5.

Head (fig. 15) at vibrissae shorter than at base of antennae. Vibrissae on a level with the oral margin. Palpi well developed, black or very dark brown. Eyes bare. Cheeks (genae) bare, or covered only with very short velvety pile just long enough to escape being called pollinose; silvery; a row of black hairs at oral margin terminating at the vibrissae. Distance from oral margin to base of eye equal to about

one-fourth of the eye height. Sides of face bare, silvery; narrowest width equal to about one-fourth of the distance between vibrissae. Facial ridges bare, except on lowest fourth. Facial depression silvery pollinose, slightly elevated vertically toward the middle. Antenna in male almost as long as the face, black but tinged with yellowish red; the third segment in male about two and a half times the length

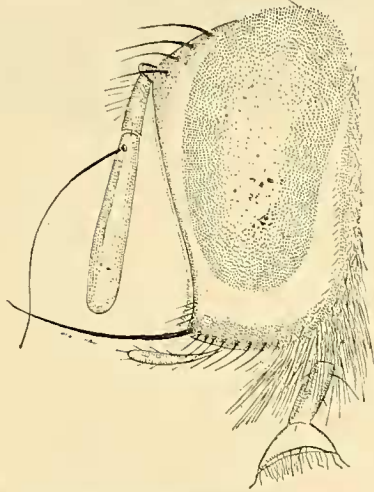


Fig. 15. Head of *Lophosia excisa*, sp. n., ♂.

of the second. Arista yellowish, thickened on basal third; the second segment not longer than broad. Front at vertex deeply excised; in male about half as wide as either eye; white pollinose below, shading to black at vertex; vitta dull deep chestnut in colour, at narrowest part about one and one-half times as wide as either side of front; no orbital bristles in male; the frontals reaching the base of second antennal segment. Ocellar bristles weak, directed forward.

Thorax, including scutellum, black, sub-shining, thinly covered with grey pollen. Two sternopleural bristles, three post-suturals. Scutellum with two strong marginal



Fig. 16. Wing of *Lophosia excisa*, sp. n.

pairs of macrochaetae and no apical pair; at the base a weak pair of bristles inserted just above the margin. Legs yellow, except the tarsi, which are black; front tarsi in male somewhat enlarged; very few bristles on any of the legs. Wings (fig. 16) tinged with brown; a group of about three small bristles at base of R. 4+5 (third vein). Tegulae white.

Abdomen of five visible segments, the first very short ; black and shining but for basal transverse bands of grey pollen on segments 3, 4, and 5. No discal bristles on any of the segments ; a median marginal pair on the second, third, and fourth ; the fifth segment with no dorsal bristles whatever.

Described from a male fly taken at Dehra Dun, Kumaon, by Dr. A. D. Imms. The specimen was taken on flowers on 26th August 1912.

Lophosia (Paralophosia) imbuta, Wied., is recorded from the East Indies ; the description of this fly is too meagre however to indicate relationships and I have seen no specimens of it. Another fly that may be closely related is Mik's Palearctic *Atylostoma tricolor*, in this case also I have no material for comparison.

ON TWO SPECIES OF PHYSOTHRIPS (THYSANOPTERA) INJURIOUS
TO TEA IN INDIA.

By RICHARD S. BAGNALL, F.L.S.

The two species of thrips described in the following pages have been found on tea in sufficient numbers as to be regarded as pests, and they should therefore be made known to economic biologists. A member of the sub-order Tubulifera (*Haplothrips* sp.) was also found both by Prof. Maxwell Lefroy and Mr. Andrews on tea, but it seems to occur also on other plants; I have not yet had the opportunity of studying it.*

P. lefroyi is a strongly characterised species both in structure and coloration; whilst *P. setiventris*, when both sexes are taken, should be easily recognised by the black "tail" of the ♂. The former species may ultimately be removed from the genus *Physothrips*, with advantage.

Physothrips setiventris, sp. nov. (fig. 1).

♀. Length about 1·2 mm.

Head light grey-brown; prothorax and pterothorax yellowish, lightly shaded with grey-brown to brown; abdomen chestnut-brown. Antennal joints 1 and 2 grey-brown, as dark as or slightly darker than head; 3 pale yellow; 4 brown, with extremities clear or yellowish; 5, 6 and style chestnut-brown, concolorous with abdomen. Legs pale yellow; femora, chiefly along outer margins, scarcely noticeably tinged with grey or grey-brown. Fore wing with basal fourth (or thereabouts) clear, thence brown to the apical eighth (which is also clear), this brown area being somewhat lighter about the middle and giving a banded appearance; setae brown, cilia smoky.

Head about 0·7 as long as wide; cheeks subparallel, almost imperceptibly arched; dorsal surface irregularly transversely striate posteriorly. Eyes in greatest dorsal length occupying about 0·6 of the total length of head, moderately coarsely faceted, pilose; space between eyes about the width of one of them; ocelli set well back, posterior pair on a line drawn across the basal fifth of eyes, with a pair of well-developed interocellar bristles between them. Mouth-cone reaching well across prosternum; maxillary palpi long, 3-segmented the middle joint being the shortest. Antennae set below the vertex, sub-approximate, 2·3 times as long as the head; all usual setae long, prominent; segments minutely setose in more or less ring-form; relative lengths of segments approximately as follows:—16 : 28 : 40 : 36 : 24 : 29 : 5 : 10; form normal, segment 6 short and stouter than is usual, being approximately equal in length to 2; forked sense-trichomes on 3 and 4 with the arms widely branching (fig. 1 c).

Pronotum subquadrate, about 1·2 times as long as the head and 1·25 times as broad as long; posteriorly margined; surface sparingly setose. The pair of setae at posterior angles rather stout, subequal in length and about 0·45 the length of the prothorax. Pterothorax normal, only very slightly longer than broad. Legs normal, sparingly setose; hind tibia with a series of stout setae at apex within, and the

* *Haplothrips tenuipennis*, Bagn. (Ann. Mag. N H. (9) i, March, 1918).

hind tarsus furnished with more than usually stout setae. Wings fully developed, pointed apically. Fore wing about 14 times as long as wide across middle; veins indistinct; costa with 28 setae; lower-vein with 11-14, finishing just beyond the brown area, and the distal half of upper-vein with 1+1 setae near end, occupying the distal eighth or thereabouts; setae fairly long and moderately stout; cilia inclined to be sparse, lower fringe long, waved; median vein of hind wing very distinct, reaching almost to tip; brown.

Abdomen elongate-ovate, widest at about segment 4, slightly wider than pterothorax; segment 9 not much longer than 10 (1.2 to 1.3 times as long) with a pair of dorsal setae. Terminal setae rather long and stout. Posterior margin of tergite

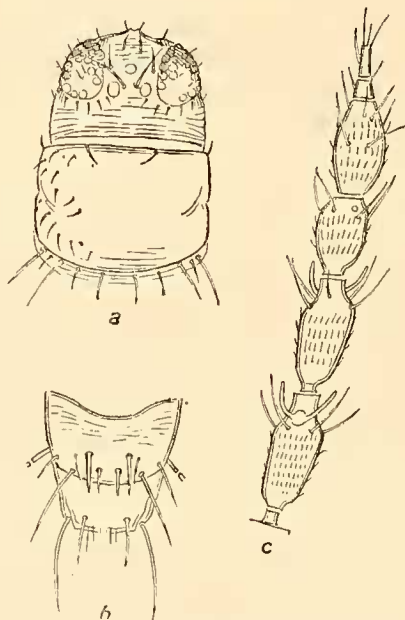


Fig. 1. *Physothrips setiventris*, Bagn., sp. n.: a, head and prothorax of ♀; b, end of abdomen of ♂, showing specialised spines on tergite 9; c, segments 3-8 of antenna of ♀.

8 furnished with a longish fringe; pleurites and intermediate tergites laterally finely striate, the striations being lined with microscopical setae, which show as fringes at the posterior margins. Intermediate sternites furnished with many irregularly placed setae in addition to the usual ones at posterior margins.

♂. Length, 0.9 to 1.0 mm.

Colour pale yellow, head as in ♀ but lighter; antennae with the two basal joints only lightly tinged with grey, otherwise as in the ♀. Wings as in ♀. Abdomen with segments 8 to 10 dark brown; 4 to 7 with more or less defined median patch dorsally, increasing in extent posteriorly, with sometimes a scarcely defined patch on either side; similar dorsal markings on 3, but scarcely noticeable. Eighth tergite with a longish postero-marginal fringe; pleurites as in ♀. Tergite

9 with 4 principal dorsal spines, the hindmost pair being shorter and stouter, situated one on each side of the median line, and the upper pair being more widely separated and about 1.5 times as long as the posterior pair (fig. 1 *b*).

Type in the British Museum of Natural History.

Received by the Imperial Bureau of Entomology from Mr. E. A. Andrews, of the Indian Tea Association. The data are as follows; India, Rington, T.E., Darjiling Dist., June 1916, from tea bushes (I.B.E. No. 119, Bagn. Reg. No. 285). There are female examples in material submitted by Prof. Maxwell Lefroy, taken at Lebong, India, on the same plant, Sept. 1908.

Physothrips lefroyi, Bagnall (fig. 2).

Physothrips lefroyi, Bagnall, Ann. Mag. Nat. Hist. (8) xii, 1913, p. 292.

♀. Length, 1.4 to 1.7 mm.

Yellowish white, lemon yellow to yellow in darker specimens; abdominal setae, setae end cilia of wings reddish brown. Antennae pale yellowish-white to lemon-yellow, with joints 2, 4 and 6 rich reddish-brown; 2 lighter distally, 4 yellowish

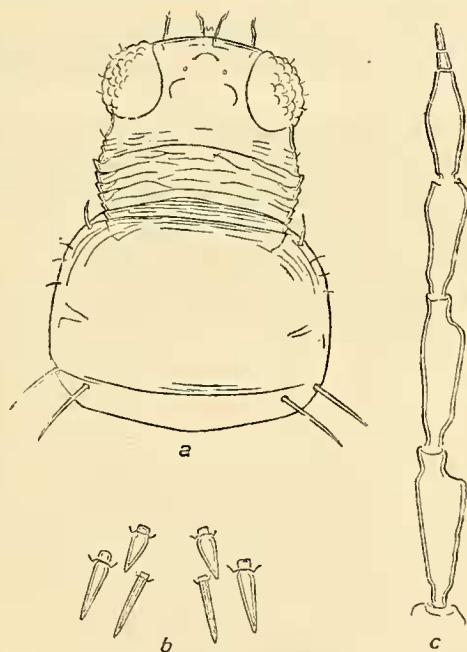


Fig. 2. *Physothrips lefroyi*, Bagn.: *a*, head and prothorax of ♀; *b*, specialised spines on tergite 9 of ♂; *c*, outline of segments 3-8 of antenna of ♀ (note that segment 3 is twisted—practically reversed—in the example figured).

basally and 5 lightly tinged with reddish brown distally; joint 1 almost clear, paler than any of the others.

Head as long as broad; eyes somewhat prominent and moderately coarsely faceted, pigmentation deep purplish-black; cheeks somewhat angularly swollen

near middle, the surface behind this swollen part being considerably more strongly striate transversely than usual. Ocelli on a raised prominence, large, the posterior pair on a line drawn above the posterior margins of the eyes; inner margins with strong crescentic crimson hypodermal pigmentation. Antennae twice as long as the head, relative length of joints 3 to 8 as follows: 26 : 26 : 21 : 21 : 3 : 5. Three and four sharply constricted apically, and furnished with long forked trichomes.

Prothorax about as long as head and 1.35 times as broad as long; setae at posterior angles about 0.35 the length of the prothorax. Pterothorax large, broadest across mesothorax, where it is nearly as broad as long. Legs normal, rather stout, the hind tibia being furnished with a series of short, slender spines from before the middle to apex within; apical spines stout. Wings fully developed, pointed apically, Costal spines of fore-wing numbering over 40, somewhat slender and increasing in length in the distal half; lower vein with 14-17 spines and upper with 3 in the distal half, that is, one near middle of wing and 2 in distal third; cilia reddish brown. Abdomen ovate, slightly broader than the pterothorax; segment 8 rounded from base, thence narrowing sharply; 9 and 10 obconical. Apical setae long; a widely separated dorsal pair on 9.

♂. Smaller, more slender, with abdomen elongate, linear. General colour paler, spines lighter, and the antennae unicolorous; the special dorsal spines of the 9th tergite reddish brown.

Ninth tergite (fig. 1 *b*) with six stout dorsal spines; four moderately long forming an obverse arc, the outer pair being the stouter, and a pair of shorter and stouter ones on a higher plane and spaced much about the same as the inner pair of the other four. Also one pair of stout lateral spines. Apical setae very long and slender.

Type in Coll. Bagnall; University Museum, Oxford.

INDIA: Lebong, Darjiling, Bengal, in the flowers of tea, 6.ii.1909 (*Prof. Maxwell Lefroy*).
